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THE ECONOMIC SAVING OF HUMAN RESOURCES

By C. L. CLOSE

MANAGER BUREAU OF SAFETY, SANITATION AND WELFARE, UNITED STATES STEEL CORPORATION

THERE was a time not long ago when employers paid little attention to the welfare of employees. Plants were built and machinery installed with a view to economy of space and volume of production. Little thought was given to the conditions under which employees worked. The industrial pioneers in this country couldn't consider the wear and tear on human bodies. They were too busy developing processes and striving to become leaders of the world in manufacturing.

We stand first among the steel-making nations of the world to-day. The first furnace for smelting iron in the United States was built on the James River in 1621 by Englishmen under the guidance of John Berkeley. Their problem was that of the pioneer. The industry was new, the country undeveloped, the Indians hostile; guns were an important part of the equipment at the furnaces. But, not until fifty years ago, after the Civil War, were the activities started that have made this country the leading nation of the world in the manufacture of steel. It required men of courage for work of such magnitude. They perfected in fifty years an industry employing over half a million of people and producing annually more than ten hundred million dollars worth of the material most essential to our civilization. Over and over again these men risked all they had in the world, lost everything and afterward won back more than they had lost.

They had many problems to face, these pioneers, while they were performing the herculean task of developing this gigantic industry. Considering the difficulties under which they labored, should we not temper our criticism of them for failing to consider the finer details of the human side of steel making? Let us see what the large corporations are doing to solve the present day problems—particularly the United States Steel Corporation.

It is the task of the present generation to prevent accidents, to ward off disease and to promote social welfare. We shall make mistakes just as the preceding generation did, and it will fall to the next generation to correct our mistakes, as we have corrected some of the mistakes of our predecessors. The opportunity for study and experiment is much better to-day, and as we become enlightened our standards will be raised. Some things that are being done to-day, which may be considered in advance of the times, will, in a short time, be accepted as

nothing out of the ordinary. Not many years ago it was unusual for a plant to have toilet and washing facilities. To-day, no manufacturer would build a plant without including these things, as an essential part of the equipment. It is only because we are becoming more enlightened and are discovering things which those before us had neither the opportunity nor the time to discover.

Not until 1900 was it definitely proved that yellow fever can be transmitted only by the mosquito; and the elimination of this cause of yellow fever made possible the building of the Panama Canal. The inoculation against typhoid fever will work wonders in the saving of human lives, and this was unknown but a few years ago. Wonderful and important discoveries and changes have been made, such as, wireless telegraphy, telephone, electric light, heat and power. We have better opportunities for education; even our methods of education are changed. I can remember the day, and no doubt some of you can, when it meant punishment for a boy to be caught using a jack-knife on the school premises; to-day, many schools have manual training courses, and before long a school without such courses will be thought obsolete. These courses were not provided in the past because their value was not understood. Understanding has come only through study and investigation.

Many things are being done in the corporation which may be considered innovations, and it may be that we are making mistakes, but we are just now going through the experimental stages of some of this work, and it will fall to those who come later to correct them. While in recent years some thought was given to the human side of steel-making, and various attempts were made to improve conditions, there was no concerted or systematized effort until after the formation of the United States Steel Corporation.

ORGANIZATION

In order to systematize and standardize the work that was being done by the subsidiary companies, the Steel Corporation, in 1906, appointed committees to study these matters. A safety committee was appointed, consisting of representatives of the larger subsidiary companies, who had already given some study to the subject of accident prevention. This committee now meets four times each year, conducts inspection by sending men from one company to another company's operations; studies serious accidents and recommends measures to prevent the recurrence of such accidents in any of the plants; passes upon safety devices and makes recommendations as to their use.

The good resulting from the work of this committee led to the appointment of other safety committees, including the central committee of safety for each subsidiary company, composed of representatives from the different plants of the company; its duties are similar to those

of the Steel Corporations Safety Committee, but with reference to its particular company only. There are also plant committees, composed of important officials of the plant; whose duties are similar to those of the Central Safety Committee, but with reference to their particular plant only. And there are department and special committees, made up of foremen, master mechanics and skilled workmen, who investigate particular problems, and workmen's safety committees from the rank and file of the mill, including even the foreigner who can not speak English. Their duties are to look for dangerous conditions and to recommend ways and means of preventing accidents. Members of these committees, especially of the plant committees, are changed frequently so that in due course each man in the plant shall serve upon the committee. Up to the present some 13,000 employees have served upon these committees and there are now 4,249 men so serving.

ACCIDENT PREVENTION

The results of the work on accident prevention have been very gratifying. Our serious and fatal accidents are about one half of what they were in 1906. We have saved since that time 14,967 men from serious or fatal injury. Approximately, five and one half million dollars have been spent in providing safeguards. Our efforts to-day are to educate our workmen in safer methods of work and to warn them against certain practises that are not only unnecessary, but often foolhardy. They had come to believe that "chance-taking" was a necessary part of their work.

FIRST AID AND RESCUE

Recognizing the fact that with the utmost care and the protection afforded by the most approved safety devices and apparatus, accidents will occasionally happen, the subsidiary companies have made provision for prompt attention to injured men and skilful care of them.

All the mining companies of the corporation have first aid and rescue crews composed of employees who are especially trained for the work. This service is purely voluntary on the part of the employees, but before any man is allowed to enter the work, he must have a doctor's certificate showing he is physically fit for the training and labor incidental to it. The system varies slightly in each company, but the general plan is as follows: Four to six men are assigned to each crew. They meet periodically and are trained by the company doctor. The course consists of lectures, demonstrations and drills. Twelve lessons are usually required to complete the course, and each man is given a certificate after he has qualified. The training of the men for the work goes on continually and many new crews are added each year. A number of crews are assigned to each mine.

At many of the manufacturing plants of the subsidiary companies

of the corporation men are trained in first aid work. The training is similar to that given in the mining companies. The primary object of first aid is to furnish an aseptic or clean dressing that will prevent infection in the wound.

As a necessary adjunct to first aid and rescue work in both mines and mills, emergency hospitals, completely equipped, have been provided. All cases of injury, no matter how trivial, are sent to the emergency hospitals or stations, where treatment is given by competent surgeons or trained nurses. Whenever the accident is of a serious nature, the injured man is taken to the emergency station, where first aid treatment is administered, and he is then transferred to the nearest hospital.

RELIEF

Also recognizing the fact that the burden of caring for the injured should be borne by the industry, the steel corporation established a voluntary accident relief plan, which was put into force before any such system had become law in the United States. This plan is purely voluntary and was put into operation by the corporation in May, 1910, and is for the benefit of all employees injured and the families of employees killed in the service of the subsidiary companies. The funds required to carry out the plan are provided by the companies, with no contribution whatever from the employees. Relief is paid regardless of legal liability and without legal proceedings; even application for relief is not required. This plan of relief is still in effect in those states where workmen's compensation laws have not been enacted. The amount paid in 1915 to and for our injured workmen, including expenditures both under our plan and Workmen's Compensation Laws was \$1,694,465.29, or 85 per cent. of our total expenditures, on account of work accidents was paid out to the injured men and their families, or in taking care of them.

SANITATION

The work in sanitation has been organized in a manner almost identical with the safety organization, except that the sanitation committee is chosen from the presidents of the subsidiary companies with an officer of the United States Steel Corporation as one of its members. This committee administers the work through a subcommittee composed largely of technical representatives from each of the subsidiary companies.

In sanitation many improvements have been made in the proper investigation and observation of water supply and distribution to the employees. All sources of drinking water are analyzed periodically and great care is taken to prevent possible pollution by surface water or otherwise. The most modern sanitary methods are employed in the

cooling and distributing of the water, including the installation of sanitary drinking fountains—the common drinking cup has been practically eliminated.

The common or roller towel was abolished several years ago. The committee has prepared specifications covering general sanitary requirements and these are followed by the subsidiary companies when installations are made. An important requirement in these specifications is that no wash basins shall be installed. Facilities for washing the face and hands shall be such that employees must necessarily wash from the flowing stream. This may seem radical, but we think it important, in order to avoid any possible danger of spreading disease. Good toilet facilities have been installed at many plants and mines—these facilities usually including shower baths. A number of swimming pools have been built for the general use of the people in the mining towns.

In Alabama, where one of our mining companies conducts its operations, the conditions are favorable to mosquito breeding. The Tennessee Coal, Iron and Railroad Company especially, are doing much to prevent the spread of malaria fever. Streets and alleys are properly drained; pools and lowlands are drained or filled in, where practical; otherwise they are covered with crude petroleum. All known methods of fighting the mosquito are used. By these methods the number of cases of malaria fever has been greatly reduced, and the comfort of the people living in our camps has been increased. Over 200,000 circulars, explaining the dangers from the fly, were distributed among our employees last summer. This circular was written in simple language, easy to understand.

Metal garbage cans equipped with tight fitting covers are placed at the rear of each house in the mining camps, and at convenient places throughout the mills. Garbage and other waste materials are collected periodically and burned.

Some of the subjects of which the sanitation committee is now making a study are occupational diseases, mine sanitation, proper ventilation in plants and company houses; provisions for proper heating and lighting systems in plants; provisions for regulation of milk supply; dust removal at plants, including roadways.

HOUSING

In the ore mining regions of Minnesota, the ore and coal regions of Alabama, and the coal-mining sections of Pennsylvania and West Virginia, very satisfactory results have been attained in the housing of employees.

In the populous centers, such as Pittsburgh and Chicago, where

many corporation mills are located, the employees are merely a small portion of the city's population and are provided for in the ordinary way in which a city's people are housed, without the intervention of their employers. In such cases intervention by the employer would appear inadvisable, if not actually impossible. Where great plants have been built at some distance from any city, as in the cases of Gary and Duluth, the corporation has been obliged to provide houses for such large numbers of its employees that it has built industrial villages adjoining the plants.

It is believed the essential provisions of water supply, sewerage, lighting and other requirements for the public health of these towns can not be fairly criticized. The housing provided by the corporation in these towns is perhaps better suited to the needs of the skilled workmen than to the wages of the unskilled workmen. This is but natural, since the organization of the new plant demands first of all a force of skilled men, who must be drawn from older plants where they have established their families. In order to induce them to come to the new plant, provisions for housing them must be fully worked out beforehand, because they will not come and even temporarily shift for themselves, as the unskilled laborers, largely foreigners without families, are accustomed to do in the beginning. Furthermore, no industry in this country has, so far, solved satisfactorily the problem of housing unskilled foreign laborers, whose families have not yet followed them to this country. These men earn low wages, out of which they seek to save the utmost amount possible. They have been accustomed to ways of living which we must try to change, but which are much cheaper than those ways in which we wish to have them live.

In the hope of evolving some satisfactory method of housing these unskilled workmen, the corporation is now studying three types of houses.

First: Houses for occupation by families only, which can be rented for not more than \$2.00 per room per month.

Second: Houses for occupation by families which follow the general custom of taking boarders, such houses to be especially adapted for that purpose, so that the family quarters may be apart from those of the boarders.

Third: Dormitories or barracks for men without families, where each man shall have a separate and sanitary room, however small and bare it may be, with common mess rooms, shower baths, etc.

We expect our new town, known as Morgan Park, Duluth, Minnesota, which is now being built to house the employees of the Minnesota Steel Company, to be one of the finest industrial towns in the country.

GARDENS

In order to promote more healthful and pleasant living conditions, the subsidiary companies owning houses in which their employees live, have offered prizes each year for the best vegetable and flower gardens. Last year there were 6,963 of these gardens in the Frick Coke Company towns alone—95 per cent. of the total number that could have been planted. The estimated average value of each vegetable garden was \$21.48, based upon the prices at which garden produce was sold by the stores in that vicinity. There were 6,633 vegetable gardens and this meant a saving to the employees of that company of \$142,536.21. To further encourage thrift, the Tennessee Coal, Iron and Railroad Company in Alabama, where, because of the long season, a large proportion of its employees have mid-summer gardens, now offers prizes for the best gardens inspected in October. The climatic conditions in Alabama are more favorable to fall gardens than in any of the other localities in which our plants and mines are situated. Some of the companies have utilized the vacant land near their plants for community gardens. The ground is usually plowed at the expense of the company, and is then plotted and turned over to the employees for their use. Prizes are offered for the best gardens. Usually the amount of land allotted is insufficient to accommodate all those who desire to cultivate these plots.

CLUBS

Many of the subsidiary companies have provided commodious and well-equipped clubhouses for the use of their employees, members of their families and friends. The features are:

Dormitories, reading room and library, gymnasium and swimming pool, baths (tub and shower), auditorium and dance hall, billiard and pool rooms, bowling alleys, basket-ball halls with motion pictures, lectures, concerts, smokers, musicals, etc.

The subsidiary companies pay all taxes and insurance and furnish heat. All other expenses are borne by the club members, the initiation fees and monthly dues being very small. In some cases these dues are fixed in proportion to the wages of the men.

Reading rooms are supplied with the current magazines and periodicals, daily papers and a good assortment of books. The social entertainments are a feature of the clubs. The affairs of the clubs are handled by the members themselves, in the usual way. Intoxicating liquors and gambling are prohibited.

STOCK SUBSCRIPTION PLAN

On December 31, 1915, more than 40,719 employees were stockholders under the stock subscription plan inaugurated in 1903. Their aggregate holdings are more than 178,898 shares of a par value of

\$17,889,800. It is impossible to ascertain how many employees, in addition to those yet receiving the special benefits that continue for five years, hold stock upon which these special benefits have ceased to be paid, but it is believed that the number would greatly increase these figures.

PENSIONS

The United States Steel and Carnegie Pension Fund, which was established in 1910, by the joint action of the United States Steel Corporation and Mr. Andrew Carnegie, had a record of 9,002 pensioners on December 31, 1915. The amount paid in pensions during 1915 was \$659,389.42.

WELFARE

In welfare work of a character not already mentioned for the benefit of the workmen, the subsidiary companies are trying many interesting experiments, some of which have already proved very successful, and it is hoped that the others will be equally successful, so that the work may be further extended.

One of the most practical and successful of the new departments developed in connection with the welfare movement is that devoted to gardening and nature study. This department was inaugurated at the Duquesne Works of the Carnegie Steel Company during the summer of 1914, and the results were most encouraging. The principal gardens were conducted in connection with the Water Street Playgrounds. Here a number of old houses were removed, and the area vacated was apportioned into 144 small plots of 8 x 10 feet—and each plot allotted to a boy or girl. The children, aged 8 to 14 years, and representing ten different nationalities, were under the direction of a trained instructor and were given daily lessons in garden making. Each garden was planted with beans, beets, carrots, radishes and lettuce; and the actual labor of planting and caring for the gardens was performed by the children themselves. The little gardeners utilized the crops for home consumption, or sold them and used the money for their own purposes. In addition to the regular care of the gardens, the children study the germination of seeds. First, the development of the seedlings, showing the transformation of the dry seed into a living plant, which breathes, eats and grows just as human beings do. This gives an insight into the wonders of the living world, satisfies the natural curiosity of childhood and affords much pleasure.

Study of methods of planting is also insisted upon. The children are taught the necessity of a knowledge of the life and habits of the plant and are shown the results of right and wrong planting. Methods of cultivation are touched upon, and the result of each method is shown. Methods of fertilization follow in succession with demonstrations of the results of each method and practical advice as to the proper method to

be selected. Then comes the study of systems of irrigation and the conservation of soil water, showing the means employed and the effects produced. This is followed by study of the various functions of the plant.

VISITING NURSES

Visiting nurses are employed by the companies in a number of districts. Ordinarily they are under the direction of the local company physician or plant manager, although in some cases they are under the supervision of city visiting nurses' associations. Their duties are to visit the homes of employees, especially where there is sickness and the family would be benefited by the assistance or instructions of a trained nurse; to render such aid as will conduce to the comfort and welfare of the families; to instruct and direct mothers in the care and feeding of infants. These nurses explain the proper preparation of all food and advise in the matter of economical purchasing, discourage anything and everything tending to immorality, and teach the value and necessity of cleanliness and the benefits of fresh air and sunshine. Some of these nurses have been provided with a house which we call a "Practical Housekeeping Center"—a house of the ordinary type in the locality, furnished in a manner not beyond the means of the lower paid workmen, but in a better style than they had been accustomed to, before coming to this country. This house is used as the nurse's headquarters. Here she conducts classes and teaches the women and girls in the neighborhood the art of housekeeping in a practical and sanitary manner.

PLAYGROUNDS

One hundred and thirty-seven playgrounds for children have been provided by our subsidiary companies. In most cases they are on the company's unused land, and in some cases they are on city or private property, but the grounds are usually prepared and equipped at the expense of the company. Competent instructors employed by the company are in charge of the grounds. In addition to playground work, some companies provide instructions in sewing, basketry and handicraft. Motion pictures, both for instruction and amusement, are shown at night to parents as well as the children. Last summer there was a daily average attendance of 18,000 children at these playgrounds. Where these grounds are installed, it is immediately apparent that the standards of the children are raised. It is impossible to overestimate the influence for good exerted by these recreation features on the future lives of the boys and girls of the community in which they are located.

EDUCATIONAL WORK

For many years the companies have been carrying on educational work among their employees, including vocational training and appren-

ticeship classes, and the teaching of English to foreigners. The purposes are:

To increase the efficiency of the workmen by teaching the fundamental and the more advanced principles involved in their individual lines of work.

To increase the earning power of the pupils by guiding them along the paths of quicker and deeper reasoning which lead to positions of gradually increasing responsibility in all departments of the mill.

To promote and develop the happiness of the pupils not only in their daily work in the shops and mills but in their home life as well by opening the door to a more thorough understanding of the meaning of life and work.

The courses are varied to meet the needs of every employee who is desirous of advancement, whether he is the graduate of a university or a man who has had no special school advantages. The teachers are men actively engaged in their respective lines, either in the mills or in the city. These men are selected because of their scholarship and broad practical experience in the branches they teach. The majority are assistants or foremen in the various departments of the mills, and, therefore, are personally acquainted with many of the students in their classes, which results in an increased mutual benefit. Actual mill problems are considered and studied in each step of the work as it is taken up in the prescribed courses, with the result that each pupil not only learns the principles involved in his own special line of work, but also those that must be understood before he is qualified for the position ahead.

Special and attractive inducements are offered to those who finish the courses.

The method of teaching English to the foreigners is usually that recommended and used successfully by the International Committee of the Y. M. C. A. in various industrial localities. The majority of the foreigners upon entering the school can not speak, read or write the English language. They are first taught simple English sentences and the names of objects with which they come in daily contact; then follows instruction in letter writing, and the filling out of money order blanks and naturalization papers. They are taught the elements of civil government; and the plan of the county, state and national governments, their departments, and the names of important officers and offices are carefully explained to them. The advanced pupils are taught writing, spelling, grammar, composition, civics and arithmetic; books on American history and geographical readers are used as text-books.